IN THE CLAIMS

1.   (Previously Presented) A hearing aid, comprising:

    a microphone to receive an input signal;

    and

    a digital processor to process the input signal at a gain, wherein the processor includes an inhibitor to inhibit distortions and an adjuster to adjust the gain of the input signal, wherein the inhibitor smoothes an envelope of the input signal so as to inhibit distortions arising from apparent modulation of the input signal due to sampling of the input signal.

2.   (Original) The hearing aid of claim 1, wherein the inhibitor creates two representations that are orthogonal to each other in phase.

3.   (Original) The hearing aid of claim 1, wherein the inhibitor includes a multiple of time-constant circuits to smooth the envelope of the input signal.

4.   (Original) The hearing aid of claim 1, wherein the inhibitor includes a detector having a Hilbert filter so as to smooth the envelope of the input signal.

5.   (Original) The hearing aid of claim 1, wherein the inhibitor includes an estimator that estimates at least one of a minimum and a maximum of two representations of the input signal that are orthogonal to each other in phase, wherein the estimator allows a linear extraction of the amplitude so as to smooth the envelope of the input signal.

6.   (Previously Presented) A method comprising:

    sampling an input signal;

    smoothing an envelope of the input signal; and

    adjusting the gain if the envelope is greater than a threshold, wherein the smoothing

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inhibits distortions arising from apparent modulation of the input signal produced by sampling the input signal.

7.   (Original) The method of claim 6, wherein smoothing includes creating two representations of the input signal, wherein the two representations are orthogonal to each other in phase.

8.   (Original) The method of claim 7, wherein creating includes creating the magnitude of the two representations to approximate the magnitude of the input signal.

9.   (Original) The method of claim 7, wherein smoothing includes smoothing using a Hilbert filter.

10.   (Original) The method of claim 9, wherein smoothing includes squaring each sample to form a squared sample, summing each squared sample with other squared samples to form a sum, and taking a square root of the sum.

11.   (Original) An apparatus for processing a digital audio signal, comprising:
        an adjuster to adjust amplification of the digital audio signal; and
        a detector to form a smooth envelope that is a rectified version of the digital audio signal, wherein the detector presents the smooth envelope to the adjuster, and wherein the smooth envelope excludes apparent modulation of the digital audio signal.

12.   (Original) The apparatus of claim 11, further comprising a preamplifier to amplify the input signal, wherein the adjuster adjusts amplification of the preamplifier.

13.   (Original) The apparatus of claim 12, further comprising an analog-to-digital converter that receives the input signal, which is amplified by the preamplifier, and produces a digitized input signal.

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14.   (Original) The apparatus of claim 13, further comprising a filter to receive the digitized input signal and to produce a filtered input signal that excludes a direct-current component of the digitized input signal.

15.   (Original) The apparatus of claim 14, further comprising a digital-to-analog converter that receives a digital adjustment from the adjuster, produces an analog adjustment, and presents the analog adjustment to the preamplifier.

16.   (Previously Presented) A hearing aid for processing an input signal, comprising:

a preamplifier having a gain to amplify the input signal and produce an amplified input signal;

a sampler to sample the amplified input signal;

a detector to form a smooth envelope that is rectified; and

an adjuster to adjust the gain of the preamplifier if the smooth envelope is greater than a threshold to reduce distortions due to an apparent modulation arising from sampling of the amplified input signal.

17.   (Original) The hearing aid of claim 16, further comprising a filter to produce a filtered input signal that excludes direct current.

18.   (Original) The hearing aid of claim 17, wherein the detector includes a Hilbert filter, wherein the Hilbert filter receives the filtered input signal, and produces two signals that are 90 degrees out of phase with each other.

19.   (Original) The hearing aid of claim 18, wherein the detector squares each signal of the two signals, sums the two squared signals to form a sum, and takes the square root of the sum to form the smooth envelope of the input signal.

20.   (Original) The hearing aid of claim 18, wherein the detector squares each signal of the two signals and sums the two squared signals to form the smooth envelope of the input signal.

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